A Work Project presented as part of the requirements for the Award of a Master's degree in Management from the NOVA School of Business and Economics.

Founding and launching Bubble, a start-up aimed at helping companies build distributed tech teams by providing access to top-tier engineers in Nigeria.

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28/12/2020

Abstract

Dissertation Title: Founding and launching Bubble, a start-up aimed at helping companies build distributed tech teams by providing access to top-tier engineers in Nigeria.

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This work project is a field lab that focused on the ideation and founding of an entrepreneurial venture, Bubble, directed towards solving the engineering talent concerns faced by companies. The work explores the technology ecosystem, the developer context in Nigeria and areas of interest in understanding the problem. The solution proposed is benchmarked against existing models including competitors; the value proposition and model assumptions are consequently validated. Results and insights gleaned show that the model possesses potential in solving identified pain points, reinventing developer hires, and becoming a fully active venture.

Keywords: Technology-as-a-Service, Distributed Teams, Entrepreneurship, Human Resources

Acknowledgements

I am thankful for the insights and guidance provided by Professor Euclides Filipe Ferreira Major throughout the course of this field lab. I also appreciate the countless professors, directors as well staff who facilitated and tremendously helped throughout my study at NOVA SBE. Thanks for your kindness, the dreams will come to pass.

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

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1.1 Problem background

The scarcity of tech talent has seemingly expanded in scope with each retelling that it has achieved almost improbable proportions within recruitment and job circles. Our first enquiry is based on a simple question; How scarce is tech talent? The rapid pace of technology and innovations has meant companies as well as organizations are having to undergo transformation initiatives aimed at boosting efforts to remain competitive and agile in the jostle for survival and profitability. Key to achieving this is the ability to attract and retain top talent, talent with the needed technology skills.

The iCIMS 2019 benchmark report states there are few, if any, organizations are not currently undergoing a transformation and aggressively looking for new talent with technology skills to lead the way. From old-line auto-manufacturers seeking to deliver autonomous vehicles and car-as-a-service to a whole new generation of farmers using drones, smart phones, and weeding robots to increase yield and reduce costs, they believe the future will be won by organizations with the best tech talent (Ajmera 2019)

Thus, with a high demand for tech talent established, it is not surprising to note that securing qualified talent is steadily becoming harder for organizations who need their services. A Wall Street Journal Report showed that US employers had about 918,000 unfilled tech jobs in the first half of 2019 with job postings rising by 32% when compared with the same period from the previous year, further highlighting the growing gap between supply and demand (Loten 2019). A CNBC article shows that accounting for the 60,300 people who graduate with a computer science degree every year, 20,000 developers who complete the coding bootcamps, and even maxing out up the 85,000 available H-1B visas to fill tech roles with international workers, that still leaves a yawning gap in tech talent shortage (Liu 2019).

A more comprehensive look into the problem is obtained by diving deeper into the ten key findings generated by the iCIMS 2019 Benchmark Report, it reports that companies face a huge technology deficit in the US, employers were only able to hire 6 for every 10 open tech positions from Jan 1, 2016 to May 31, 2019. In stark contrast, companies made 12 hires per 10 openings in all positions (Ajmera 2019). They also found that hiring is getting harder; In 2018, they found that there were 18% more net new technology hires than 2017, outpacing the overall US hiring trend of 14% net new hires. The increasing demand of tech talent was driven by companies in two sectors: telecom/information services and retail (Ajmera 2019).

The report shows that while software app developers are the most sought-after, they are not the hardest to hire; nearly one-third of all tech hires were app developers. But the hardest to hire are security analysts, data research scientists and database administrators, for which employers were able to hire less than half of their open positions. On the other hand, they found good tidings in the fact that employers were able to hire all their frontline helpdesk support positions (Ajmera 2019).

They also found that employers plan for 70 days and above to hire key roles; the report shows that in the first five months of 2019, it took an average of 80 days to hire the typical app developer. This was shown as a jump from 2016, when it took just a lower average of 66 days to hire. Crucially, they show that it takes 50% longer to hire for a tech role than all other types of roles. Thus, an added note with this key finding offered this cryptic advice to employers, recommending them to budget for three months from the time the job is posted to onboarding the new tech hire (Ajmera 2019). An important finding stated in the iCIMS report further clarifies the problem, they found that there is no shortage of technology applicants, the problem is attracting qualified candidates; it is shown that there were twice as many applicants for every tech hire in 2018, compared to all (types) hires. Thus, the key problem is the quality of candidates on offer. Thus, they offered a recommendation to employers along

with this finding, they urged a focus on attracting more qualified candidates by creating and nurturing talent pools of targeted candidates as well as stepping up employee referral programs (Ajmera 2019).

They also found that nearly 40% of all candidates submitted applications by mobile phones, thus necessitating companies to build candidate engagement and application processes for mobile devices (Ajmera 2019). Findings included in the iCIMS also showed that companies were slowly looking beyond traditional tech enclaves like Silicon Valley, New York and adapting a broader approach to tech talent hiring. Furthermore, a Korn Ferry report on the future of work states that a major crisis looms over organizations and economies throughout the world. They estimate that by 2030, demand for skilled workers will outstrip supply, resulting in a global talent shortage of more than 85.2 million people (KornFerry 2018)

Left unchecked, the report estimates that the financial impact of this talent could reach $8.452 trillion in unrealized annual revenue by 2030, equivalent to the combined GDP of Germany and Japan. The United States alone could miss out on $1.74B trillion in revenue due to labour shortages, or roughly 6% of its entire economy. They also show that organizational leaders found that 67% of CEOs believe technology will be their chief value generator in the future of work without discounting the value of human capital (KornFerry 2018).

They state that even companies using more robotics foresee a growing need for human talent with advanced skills; for example, redeploying people from the factory floor, where robots can perform repetitive work, to the research laboratory. The problem they discovered however, is the mismatch between technological advances, including automation, artificial automation (AI), and machine learning, and the skills along with the experienced workers needed to leverage these advanced tools (KornFerry 2018). The Korn Ferry report posits that technology cannot deliver the promised productivity gains if there are not enough human

workers with the right skills. This has set the scene for a global tech talent crunch. It is estimated that Unites States' financial services sector will suffer the most from stunted growth due to lack of talent, with $435.69 billion in projected unrealized economic output, equal to about 1.5% of the country's economic output (KornFerry 2018).

For the all-important technology sector, they found that a labour-skills shortage will reach 4.3 million workers by 2030, or 59 times the number of employees of Alphabet, Google's parent company. This would equate to a loss of about $162.25 billion by 2030 due to sector skills shortage, accounting for more than a third of total unrealized output across all countries. This, the report posits might imperil America's status as the global tech centre (KornFerry 2018). Thus, having adequately examined and identified the existence of a tech talent shortage, we shall proceed to the second part of this enquiry.

1.2 Tech background in Nigeria, an African Overview

To start with, a broader look at the African continent and vital indices will provide a wide perspective on the attractiveness of the continent and attendant benefits as well as potential benefits to be derived from Nigeria. According to a PWC study titled "Disrupting Africa" (PWC 2016), they identify key megatrends in which Africa posts tremendous advances and benefits for players well positioned to take advantage, with regards to democratic and social change, they estimate that 50% of the world's population growth between now and 2050 is expected to come from Africa.

They also indicate a prominent shift in global economic power, they state that 350 million people belong to the middle class in Africa and the continent has the fastest growing middle-class population in the world. Rapid urbanization is also expected to lead to an increase in the number of megacities to 12 by 2025. Growth in mobile usage was also shown to grown by 344% between 2007-2016, far outstripping growth in the rest of the world which grew by

107% within the same period (PWC 2016). Diving deeper, as reported in an OC&C report commissioned by Google focusing on tech entrepreneurship in Nigeria (OC&C SC 2018), Nigeria is the largest economy and the most populous country in Africa, with a GDP of USD 406 billion and a population of 208 million people (World Population Review 2020). GDP per capita is USD 2,640 (USD 5,900 PPP adjusted terms), which is reported as being higher than other developing countries such as India, Kenya, and Zambia.

The report highlights the commercial capital Lagos as having more than 20 million inhabitants and a GDP/capita of USD 6,238. Nigeria is also shown as a very young country with nearly two-thirds of its population under the age of 25. Crucially, this highlights the existence of a massive workforce and available labour because the population is expected to grow to 300 million by 2050 (OC&C SC 2018). The report posits that the projected population growth could cripple Nigeria's already inadequate infrastructure. The young demographic balance also creates a substantial employment challenge for the future, the ratio of the population due to exit the workforce in the next five years (aged 55 to 59), to those due to enter it in the next five years (aged 15 to 19), is 1 to 4.5 (OC&C SC 2018). Thus, the report suggests a need for a whole new approach to job creation in the country.

Going further, the OC&C (OC&C SC 2018) delivers key insights on the Nigerian tech ecosystem, these insights are examined and paraphrased in the following paragraphs, in its summary, tech entrepreneurship outputs, the report posits that tech entrepreneurship in Nigeria is in its early stages but regarded as having great future potential. It asserts that start-up density hints at great potential for new start-ups and their longevity indicates that, once funded, tech start-ups are likely to persevere in Nigeria. It points to the fact that the tech ecosystem had already produced three exits worth over USD 100 million: namely, Jumia, Andela and Konga. It specifically highlights the online marketplace Jumia, which was launched in Lagos in 2012, has 3 million customers, 3,000 employees, and operates in 23

countries. Jumia group became the continent's first "unicorn" with a 1 billion USD+ valuation in 2016 (OC&C SC 2018).

The second part of report's summary covers tech entrepreneurship ecosystem inputs, the OC&C report (OC&C SC 2018) states that Nigeria has a vibrant entrepreneurial culture fuelled by its abundant activity, despite its myriad infrastructure challenges. It posits that ecosystems have developed in Lagos and Abuja with unique network of players, areas of focus, and gaps that need to be addressed. The report found that marketplace applications represent the most popular tech entrepreneurship area in Nigeria, with SMEs increasingly using these platforms, to sell their goods & services. E-commerce is also identified as another large field for start-ups. The report found that business-to-business tech entrepreneurship is still latent, due to payment cycles, market entry barriers and requirements for relevant sector expertise.

The OC&C report identifies repatriated start-up founders as leading Nigeria's increased focus on innovation by integrating knowledge acquired abroad into the Nigerian ecosystem. Thus, the report posits that the essential ingredients of a tech entrepreneurship system have steadily materialized over the last decade in Nigeria. The Nigerian tech ecosystem has seen as a drastic increase in the number of hubs, incubators, accelerators, tech media, events, and summits. A key finding proffered by the report was that many of the initial businesses were local adaptations of established models around the world (OC&C SC 2018). Consequently, though as highlighted by the report, now, there is also a new wave of founders starting to tackle Nigeria-specific issues, focusing on how these can be solved and later how the businesses can be scaled up to resolve similar challenges in greater Africa.

Ongoing developments and growth are expected to draw in more participants to the ecosystem and expand its current market versatility and international competitiveness.

1.3 Developer talent in Nigeria

According to the OC&C report (OC&C SC 2018) Nigeria is regarded as a very young country, with nearly two-thirds of its population under the age of 25. Between 2010 and 2015, Nigeria experienced annual population growth of about 2.7%, the reports states citing the UN.

The developer market is relatively young, growing in direct response to the advent of the tech boom in the country. The OC&C report generated several points on this, they found that qualified developers and engineers in the ecosystem are either foreign educated or self-taught, they showed that educated Nigerian youths are very eager to leverage new technologies and create a future for themselves, while tacking local and Pan-African challenges. Another finding is that there is a large group of foreign trained entrepreneurs moving back to Nigeria and they also found that technically inclined local talent often teach self-teach development and coding skills using informal platforms such as Coursera and YouTube.

Private initiatives by entrepreneurs, foundations and multinational tech companies are addressing the underdeveloped skills challenge in Nigeria as found by the OC&C report. Programs such as Andela, Africode and the Tony Elumelu Entrepreneurship Foundation have arisen from a shared vision to make Nigerian youth more employable through institutional training and skill development (OC&C SC 2018). A key finding also noted by the report is the fact that given tech skills and cultural preferences, tech start-ups often struggle to attract, afford, and retain qualified talent. Thus, the report states that technically qualified talent often chose corporate careers with better income prospects in telecoms or banks over the risks of entrepreneurship.

Added to this, they report start-ups find it difficult to attract and retain good technical talent as they compete with established companies who can afford to pay more. Low equity stakes offered in start-ups as part of the compensation packages as well as the low number of quality

founders in the market is also highlighted as putting off skilled individuals from venturing into entrepreneurial and business ideas (OC&C SC 2018). Thus, private endeavours have arisen to tackle the lack of access to opportunities as well as lack of software developer skills within the country. One notable venture is Andela, one mentioned previously.

The OC&C report (OC&C SC 2018) highlights Andela as a start-up founded on the principle that with the right kind of training, there is enough talent in almost any country to create a base of advanced software developers. It states that the venture provides companies with access to top-tier tech talent by identifying high-potential developers on the African continent, shaping them into world-class continent technical leaders and pairing them with global companies abroad as a full-time team member. Within six months, they report that the program places participants with clients including global names such as Microsoft and Udacity.

1.4 Solving the gap: Bubble

Having examined the two sides to the problem, the proffered solution is crafted in the shape of Bubble, a start-up venture launched to tackle the examined issues. The business model underpinning this is examined below with the key valuation proposition which is two-fold, Corporate partners/Companies and Tech talent/Developers. The key challenge identified is that while brilliance is evenly distributed all over the world, opportunity is not, thus Bubble is devised to identify high-potential talent in the Nigerian nation, onboard them and place them as full-time distributed engineers with companies all over the world, thus, establishing Bubble as an engineering-as-a-service venture.

Bubble's business model strategy is based on differentiation - delivering personalized offerings for clients, proffering distributed tech teams that exceed job requirements, a consultative approach process and a focus on excellence at premium cost. Thus, the focus is

on crafting solutions to fit client needs, we are not just selling solutions because we can, we are passionate about finding the best option that delivers the most value for partner organizations.

For the companies: Niche focus on remote teams

1. Solutions to specific problems in tech with regards to recruitment, tech talent management and team building.
2. Consulting advice towards creating ideal teams: differentiation in crafting unique solutions to solve specific client requirements (reach short term goals, project milestones and strategic long-term positioning)
3. An in-depth consultative and exploratory process to understand client's business needs.
4. Lower cost in terms of recruitment, selection efforts and remuneration
5. Top tier tech talent (Top 1%) & data driven matching, excellent performance tracking and quality assurance.
6. Validation through a rigorous and strict competency test framework, one that ensures quality, evaluates valuable skills as well behavioural assessment to gauge leadership along with collaboration abilities.
7. Impact in productivity and efficiency in project development
8. Alignment with company project's goals & achievement
9. Focus on providing hard/exclusive profiles for companies, this would be a differentiating point for the value proposition. Focus on unknotting the complex recruits and solving efficiently.

Client profiles:

- Start-ups that have a budget, but no/limited software development department.

- Companies that already know what they need but are not dedicated to software and are looking for expertise.
- Companies that already have a software development team and need to augment their team with specific abilities.
- Companies that are going through a digital transformation process but have not identified their needs.

For tech profiles

Expand your career and opportunities by working with high-performing engineering teams around the world. Excellent and fair remuneration, we value people, and this shows in how they are rewarded.

1. Excellent remuneration above the average in the local market, at least 30% - 50% higher expected local earnings.
2. Possibility of joining high-performing teams in a multicultural environment.
3. Extensive opportunities to develop and maximize tech skills.
4. Providing the right platform to shine
5. Passionate about professional all-round improvement (soft skills and tech expertise)
6. Creating excellent networking and meaningful global connections.
7. Offering access to challenging and impactful projects that change lives and perhaps, the world.
8. Perks: Learning & Development / Digital Nomad Perk (Flexibility, Travels)

2.0 Industry Analysis: Benchmarking

This section examines the direct competitors, indirect competitors as well as substitutes in existence. This allows for benchmarking of the Bubble model against the competitors it will tussle in positioning to gain valuable market share. This is a vital phase as it allows initial

projections and strategies to be weighted in comparison to reality, this in turn gives an awareness of the market situation/conditions, albeit one that is incomplete given the gaps still existing because of the continued absence of venture validation, one that will be examined further on in this body of work.

2.1 Direct Competitors

This classification refers to companies with a similar model that offer to build remote teams, specifically with a business to business (B2B) approach. This section explores their unique value proposition (how they create value for companies) and specialized offerings.

1. Andela
    - Andela is a global talent network that connects companies with engineering talent in emerging markets, based in New York, it has raised a total of $181M in funding over 9 rounds with a post money valuation of between $500M-$1B (Crunchbase 2020).
    - Earnings figure released in 2019 showed the start-up surpassed $50M in annual revenues (Andela 2020).
    - Focused on providing companies with developers who demonstrate grit, problem-solving, ability and learning velocity. Andela is an engineering-as-a-service business that helps companies build remote teams quickly and cost-effectively (Andela 2020)
    - Candidate excellence validation through testing: 45-point engineering competency framework, a proprietary, 30-question rubric based on seniority and stack, and each prospect undergoes a behavioural, situational assessment to evaluate leadership skills (Andela 2020)
    - Matching & ensuring good fit for both across countries and culture, delivers infrastructure for developers to work in the project such as space and tools.

Latest reports however show the start-up is making a transition to becoming a fully remote online marketplace. (Andela 2020)

2. Avantica
    - They offer nearshore engineering services, focused on developing products but are also able to allocate remote teams, it was acquired in 2019 by Encora for an undisclosed sum.
    - Estimated annual revenue is currently $115.9M per year (Growjo 2020). They were founded in 1993, their first clients were in Silicon Valley, they are oldest in the market with bases in Costa Rica and California.
    - Competitive advantage: Round and comprehensive approach to both teams and products, built gradually over the years through providing solutions with people-dedicated teams and projects-individual projects (Avantica 2020).
3. Tunga
    - Founded in 2015 and based in Uganda, estimated revenue is around $1M, it has had no funding rounds with financing through grants estimated at a total of $500k. It is focused on linking African developers to international software projects through an innovative transaction platform. (Finder 2020).
    - Provides companies worldwide with Tunga's workforce of exclusively African software engineers to build new tech products quickly, affordably, and smoothly (Tunga 2020)
    - Offers unique prospect of dedicated developers, "reinforce your team with remote developers - full time or part time; temporary or permanent. LEAD TIME: 1 - 2 weeks. PRICE INDICATION. 26 - 29 EUR per hour". Services offered: Dedicated developers, Project outsourcing, Scoping & design, Software Maintenance (Tunga 2020)

4. RemoteCrew
    - Help to build remote teams reducing hiring time.
    - They provide the setting up in Europe, specifically catering to the European market, handling the placement of engineering talent and remote teams (RemoteCrew 2020).
    - They handle the recruitment, the legal process and onboarding (Set Up).

Additional research on Indirect Competitors and its subsections which includes outsourcing companies, HR and recruitment companies, placement model platforms as well as on Substitutes with its tech and services subsection can be found in Appendix 1.

Features	Direct Competitors	Outsourcing Companies	Placement Model	Substitutes: Tech and Services
Model	Remote	Physical	Remote	Remote
Approach	B2B	B2B	B2B/B2C	B2C
Composition	Team-based	Individual	Individual	Individual
Hiring	Direct/ Contract	Direct	Freelance/Contract	Freelance /Contract
Structure	Specialized	Specialized	Platform	Platform /Specialized
Recruitment	Niche	Widescale	Niche	Widescale
Earnings/Financial	Commission /Invoicing	Hiring Fees	Subscription /Placement Fees	Subscription /Gig Commissions

Table 1: Feature differentiation of Competitors

As seen in preceding text and highlighted in *Table 1* above, benchmarking these categories while not being completely exhaustive ensured that the proposed Bubble model could be

weighed against existing models as well as providing an in-depth outlook into the capabilities, competitive advantages and differentiating strategies of competitors as well as substitutes.

3.0 Hypothesis Testing and Model Validation

This underpins the crucial stage of hypothesis testing, while in the preceding section of this text, data from secondary sources has been exhaustively utilized, it is important to subject the key assumptions upon which the Bubble solution model is based to validation. Crucially, such models need to be validated with the target consumers and any other vital components of the value proposition. This ensures the minimization of risk and the gradual shaping of proposed model based on feedback and market understanding towards achieving a problem-solution-market fit.

3.1 Data collection

Data collection had two focus areas; generating data from developers (tech talent) and companies (corporate partners), the major components of the venture model upon which the value proposition and start-up assumptions were based.

3.2 Developer Research and Validation

The data collection method utilized was the survey format, Qualtrics XM was adopted because of COVID-19 restrictions, geographical separation from the respondents and platform suitability to managing such data types. The survey was created on Qualtrics and shared in the online communities of developers in Nigeria, amongst acquaintances in the tech sector and social media contacts.

It had 19 questions in all, and the target participants were developers and other core professionals in the Nigerian tech sector. The survey page recorded 46 responses in total, with incomplete and defective surveys excluded from the final count. The survey was active for the time duration of about one month, granting participants ample opportunity to complete the

questions. The survey design also had specific conditions imposed on certain questions allowing for nuances and specific characteristics to be accounted for, thus, “IF” conditions existed in the survey meaning participants were shown certain follow-up questions based on their previous answers.

3..3 Findings, Interpretation and Discussion

The data generated from the developer research was eagerly awaited as it held particular interest due to being generated first-hand and paving a way to correlate assumptions as well as facts garnered from existing secondary sources examined earlier in this body of text upon which the venture model was based. The average age of respondents for the developer survey was 27 years, this agrees with the secondary sources, the tech ecosystem in Nigeria is relatively young with most start-ups being created mostly within the last decade, as such, the talent pipeline is young which is also in line with population and workforce indices for the Nigerian nation. With regards to possessing a degree in tech, roughly 50% of respondents had a degree with about 50% not having one.

The average in years of experience was 3 years, signifying correlation with ages and indices, the common roles indicated proved to be software engineers, data scientists and mobile developers, these being the most popular roles in the global ecosystem as determined by demand, platform consumer size and other factors. Languages utilized proved to be close to expected distribution as determined by language popularity and roles, certain roles often utilize specific languages, it was encouraging to note that most of the respondents had freelancing experience which bodes well for a remote venture. Most were not currently freelancing and most also were not in a tech related job, an overwhelming majority were looking for a new job which validated the notion of being able to get applicants for the model.

It proved crucial to understand developer motivation to seeking a new job and the results proved a bit of a surprise, international experience and professional development ranked joint highest in respondent motivation with new challenges coming a close third. A better renumeration which frankly was expected to be higher came in a distant fourth. However, this makes sense given the relative youth of the workforce, value added, skill gain and growth prove to be huge draws granting the model insights into talent capture. In terms of average income, about 25% of respondents earned below 100,000 (€214.22) and 50% of respondents earned below 320,000 (€685.51), these corroborates previous assumptions and existing local knowledge about pay-scales, it also validates the model with regards to expected renumeration for developers within which cashflow and possible benefits can be implemented.

Contract terms had a majority preferring full-time, while part-time and freelance had about 45%, this supports the model's drive for a remote model of full-time embedded employees, additional tweaks can also be made, as necessary. This validates the receptiveness of developers to a remote model and viability of such a venture within the local ecosystem. Motivations for a remote experience included flexibility, independence, new challenges, digital nomad, and higher income all being rated highly, which represents the key value proposition offered to developers and this validates the Bubble model as well as granting additional insights into the value capture possibilities.

Salary rankings are influenced by exchange rates, the low exchange power of the Naira and low-income rate comparable to other countries. 70% indicate 100,000 (€214.22) as being a low offer, 30% think it is average, 250,000 (€535) is considered average by 50% and 45% think its competitive. 50% think 400,000 (€855) is average and the rest think it is either competitive or high. For higher sums, most think its competitive and at 1,000,000 (€2,139), 95% of respondents rank it as a high salary. Thus, it validates the venture assumption that it is

possible to substantially improve the prospects of developers whilst providing companies access to excellent talent who erstwhile might have lacked such opportunities.

Challenges indicated by respondents as faced while seeking a new job throw up a few surprises, lack of suitable jobs is a validated assumption, competition/high number of applicants is also validated, lack of proficiency is indicated as a variable challenge not a major challenge as assumed, lack of soft skills however is the big surprise as participants indicate it is not a challenge. It is believed however that developer response to this factor is biased and influenced by the belief certain skills are not important for their positions.

Reasons for valuing a new job paints a logical picture considering established facts, opportunity to learn and career advancement are top ranked, opportunity to work in teams and international experience validate the Bubble remote teams' model, competitive salary is rated lower than expected but still has a significant impact, it is expected that this becomes a weightier factor with career progression.

4.0 Client Validation and Discussion

This proved quite challenging to implement as the prevailing conditions meant previously used channels were unavailable and the available online channels were clogged as business operations survived on a fully remote and work-from-home model in coping with the COVID-19 pandemic. Although a company-focused survey was created on Qualtrics XM, one that consisted of 16 questions aimed at validating as well as gaining insights into company/partners side of the model, response was negligible with a total of two respondents, forming an incomplete data set and a small sample size.

Seeking solutions, we found an innovative and easier way to go about gaining the first-hand insights and feedback that we needed. This solution came in the form of my co-founder, we began the initial ideation process together and although not an official partner in this thesis

work, haven already graduated from NOVA a semester earlier, she holds developer-facing as well as client-facing positions in Talently, formerly as Head of Admissions and now, Head of Corporate Partnerships.

This meant that over the past one year, she has held hundreds of interviews, sessions, meetings with vital stakeholders on the company/partners ecosystem side of the proposed model, figures whose validation and feedback would prove crucial, these include recruiters, head-hunters, human resource executives, developers of varying specialities, company executives, project managers amongst others.

Thus, we incorporated enquiries that were crucial to validating our model into her formal interactions and since the sessions originally focused on understanding developer as well as client needs, it made for easy integration. We ensured there were no conflict of interests by having no access at all to confidential client information, internal business operations or organizational strategies. Thus, we were able to steadily build a framework of key insights that have been generated from these first-hand interactions and enabled validation in an uncertain period. The insights are examined below.

We enquired if it was difficult for companies to hire developers, the insight gained pointed to the fact that this is hard, start-ups in particular reported struggling at this, due to the lack of a specialized HR team or vetted processes. Medium sized and large companies also surprisingly had difficulties, reporting problems with finding the right talent with needed skills/profiles as well problems with assessing candidates, mainly difficulties with deciphering the best candidates and distinguishing those with vitally sought skills, thus often turning to external agencies and head-hunters to attract the right personnel for their tech teams. This validated the crux of the model which rested upon the existence of this problem and the difficulties faced by companies in solving it.

Duration of hiring process was seen to vary depending on the company, urgency and business need often also determined to a large extent how fast a candidate would be onboarded. Start-ups were seen to hire faster with less processes with larger companies taking more time, often averaging 1-3 months, hiring processes were seen to be also be extended by number of tests and interviews companies had to administer. This validates the key value proposition of the model being able to shorten hiring time and increase productivity while lowering costs.

A unifying problem in hiring was thus shown as difficulties in reaching out to the right candidates. This represents a key struggle, accessing the right talents is reported as being quite difficult with companies severally restricted by the local market, geographical and national considerations, a steady shift however was seen with more companies belatedly moving to a remote structure and opening up to different possibilities for candidates to join their teams. This validates the proposal of a remote model that allows companies to access a wider pool of talent, allowing the geographical considerations to be less of a hurdle for companies.

This further supports the insight into companies being receptive to a remote model, however, with slight variations, it was seen that some companies still preferred candidates from their home country, this is majorly influenced by tax considerations. Some others are open to a full-remote candidate process, traditional companies were seen shown as being more cautious while start-ups generally are more experimental, larger companies also tend to keep key activities in-house to retain competitive advantage, although some now actively outsource certain parts of their tech teams.

On the types of preferred contract offered, companies often offer contractor-based contract types, allowing remote individuals to work independently, this is the common type offered, companies who are often trying to start remote hires are fearful although most report it as not being complicated to deploy after understanding and exploring options available, concerns

over taxes and legal regulations prove to be most feared. The presence of remote activity and type of contract on offer validates the expectations of being able to implement remote teams for companies, it is clear however that offerings might need to be adapted to specific needs.

Enquiring about utilizing agencies to hire also had some companies reporting using this to reach bigger pools of qualified talent, so using internal HR teams in collaboration with head-hunters and agencies. They often ask these external partners for help with assessing candidates due to the specialized knowledge needed for testing and vetting developer skills. Existing technical personnel are shown as being able to assess but often lack the HR expertise needed for key hires. Lacking expertise to adequately test candidates was also seen to constitute a problem in the short term, affecting company performance and internal processes while also bleeding into a longer time taken to hire resulting in lost productivity. These has led to the rise of hiring platforms to fill this yawning gap as well start-ups offering to help companies hire skilled developers as remote teams, most of these have been benchmarked earlier in this body of text.

The gaps in testing as well as the willingness to utilize external agencies validate the veracity of utilizing the Bubble model, while companies retain fears, the indication by companies with regards to the usefulness of orientation and clear communication of available options in helping to overcome their fears and discovering that implementation was not complex once embarked upon might prove to be an invaluable insight.

4.1 Limitations and Further Research

Limitations of the field lab exist in terms of the small developer sample size although it does corroborate facts obtained from secondary sources. Company feedback also could be influenced by a lack of respondent objectivity and sector biases which might cause potential mismatch of feedback with the actual reasons why certain problems exist. The enquiry also

suffered from a lack of existing literature and information sources, it proved to be a major obstacle. The inquiry also failed to ask if respondents possessed degrees in other specialities, this would have allowed more distinction to be made in revealing those with no degrees at all. The COVID-19 crisis also proved to be a huge obstacle as it made data collection and respondent access exceedingly difficult, thus severally limiting the scope of the enquiry and options available. Opportunities for further research exist with regards to tech education and developer skills, enquiries could further explore other models that could be deployed into solving the myriad problems identified as plaguing the ecosystem.

5.0 Conclusion

It can be asserted that embarking on this field lab project proved to be a major determinant in the founding and continued existence of the Bubble venture. Gleanings taken from the problem investigation up until the client discussion all provided vital insights in tweaking the value proposition, business model and activities. Crucially, the field lab allowed an understanding of the problem being solved, cementing it as a true need and proving that the problem is important. The findings granted viable facts on why our value proposition is important, turning earlier assumptions into solid knowledge and allowing us to assert that the value proposition is a need-to-have concern for businesses.

Benchmarking proved to be vital in learning how clients sell and how offerings will compete against the Bubble model, validation allowed for insights into how product, service and employee differentiation can be improved whilst eliminating certain assumptions as untenable. It showed the variations in target customers, pains they face and the addressable market available It also allows us to craft realistic projections into pricing models, financial model, and developer availability. It also provided an understanding of developer needs and the comparable viability of the model considering such insights, client pains were also investigated, with enquiries aimed at validating assumed pain points and hiring struggles, all

these generated a raft of vital data that form a comprehensive framework upon which the model was improved and expanded.

Whilst the entire field lab took place during challenging times of the COVID-19 crisis, it was interesting to note that an attendant upsurge in innovation and transformation towards a remote or work-from-anywhere model was adopted by most organizations as a matter of necessity. Thus, despite the crisis being a period of uncertainty, it has led to a raft of possibilities with regards to growth and client acquisition for the Bubble model and similar models elsewhere working on solving the pain and problems faced with regards to tech and developer hires.

Having a wealth of data from the field lab and the subsequent thesis report has meant the journey to becoming a full-working venture has been intuitive and guided by factual insights based on actual market conditions. It is important to note that constant enquiries are continually made by the venture in tweaking its offerings and refining its value proposition alongside its model to achieve a true problem-solution-market fit. Rapid growth, scaling and expansion might be possible only after this.

However, those concerns are at some point in the future, at present, it is important to implement sequentially, focusing on deploying one phase after another. And then, we might see a unicorn, albeit after loads of graft, hard work, innovation, and a raft of other vital components.

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7.0 Appendix

7.1 Appendix 1: Competition/Benchmark

7.1.1 Indirect Competitors

This classification refers to companies with models and offerings which are not similar, but which might potentially be able to satisfy the need that Bubble aims to fill. These are further grouped into sub-specializations determined by offerings and platform model.

More focus and attention are placed on the placement model platforms in the following subsection as they represent the grouping whose offerings are most likely able to fulfil the same need and provide the most competition.

7.1.2 Outsourcing Companies

Globant

- Focused on leveraging the best technologies methodologies in the digital and cognitive space to help organizations transform (Globant 2020)
- Creates innovative software products to emotionally connect customers with their consumers and employees, while improving their efficiency (Globant 2020)
- Represents the evolution of professional services as they foster the new paradigms of innovation, entrepreneurship, autonomy, digital technologies, AI, and agility (Globant 2020)
- Works with Agile pods: Agile Pods are self-organized teams that work to meet creative and production goals, make tech decisions, and reduce risk (Globant 2020).

7.1.3 HR & Recruitment Companies

These are companies that undertake human resources and recruitment activities, engaging in such activities as headhunting, recruitment, selections tests, assessment centres, outsourcing

engagements amongst others. These number in the hundreds but the three biggest in terms of employee size and market activity are given honourable mentions.

They are Adecco, Manpower, and Randstad (Onrec 2015) Adecco has upwards of 20,000 employees, Manpower has 18,508 and Randstad comes in close third with 17,429. These represent the clear leaders as the next on the list, Allegis only boosts 10,697 employees.

7.1.4 Placement Model Platform

I. Arc

- Allows companies to hire senior remote developers, pre-vetted and tailor matched to them (Arc 2020)
- Connects them with trusted remote developers so they stop wasting time on bad hires.
- Claims only the top 1.1% pass their Silicon Valley-calibre interview process (Arc 2020).
- Promises companies they can hire in days, not months.

II. Tecla: Hiring Marketplace

- Designed as a platform to cater for remote talent.
- Allows companies to interview and hire top remote candidates in their time zone from across the Americas (TECLA 2020)
- Proposes hiring remote developers directly to companies, connects them with the right engineers, so those companies can hire them directly (TECLA 2020).
- Allows direct hires, companies pay only if they hire and it is positioned as a top talent network (TECLA 2020).

III. ThirstySprout

- Offers a proposition of hiring world-class specialists. “Hire bar-raising remote developers on ThirstySprout” (ThirstySprout 2020)

- Quickly find the best remote developers, filtered by your industry and technical expertise (ThirstySprout 2020).
- ThirstySprout is a community of high-performing hand-vetted engineers on-demand (ThirstySprout 2020).

IV. HackAJob

- Platform to hire top tech talent, fast! Source, assess and hire tech candidates from the UK's most engaged talent pool. (HackaJob 2020)
- Candidates are technically pre-screened, claims to allow companies to hire in just 17 days or less (HackaJob 2020)
- Provides the option to source candidates who are focused on finding remote roles in suitable time zones and the tools that help with the remote interview process (HackaJob 2020).
- Also share insights and advice on how to attract top tech talent (HackAJob, 2020).
- For Candidates: Maximise your potential. Think big, search small and get the job you deserve (HackaJob 2020)

V. Techloop: Hiring Platform

- Candidate focus: Create your anonymous profile to receive offers from companies with up-front salaries. Join us today and start matching with companies for free (Techloop 2020).
- Companies: Powerful matchmaking for effective sourcing. Techloop is the biggest and fastest sourcing platform in tech. Our sophisticated data-based system enables perfect matchmaking to connect people and businesses through relevant job offers (Techloop 2020)
- Proposition: Manage all your hires from a single place. Publish your Job Postings, contact relevant candidates or react to their interest. Our algorithm lists all matching

candidates for your Job Postings. You can discover hundreds of profiles with the best matches on the top (Techloop 2020)

7.1.5 Substitutes: Tech and Services

a) Acklen Avenue

- We craft custom web and mobile applications at the speed of opportunity, for innovators who want to get stuff done (AcklenAvenue 2020)
- Our expert software engineers use agile development practices that make those projects a success (AcklenAvenue 2020).

b) StackOverflow

- Open-source platform that helps developers to solve main questions or problems on their learning process or daily basis (StackOverflow 2020)
- They offer a hiring platform where companies can post job offers.
- Offers a subscription plan for companies to manage and share knowledge within the company through different tools and optimizing time invested in solving questions (StackOverflow 2020).
- Compared to LinkedIn, it is a niche platform

c) KuHustle

- A community of freelancers, KuHustle sources for projects across the globe and uses skilled African freelancers to deliver the jobs (KuHustle 2020).
- “Post a job, get the right talent to deliver it” (KuHustle 2020)

d) LinkedIn

- World leader in professional business profiles, connections, and professional community (LinkedIn 2020).
- Main recruitment platform for companies.
- Main sourcing platform for candidates

- Main search platform for head-hunters.

7.2 Appendix 2: Go-to-Market Strategy

1. **Entry framework**
    a. Choose the right person!
        i. Influencer: someone involved in the purchase decision.
        ii. Decision maker: HR or Project Manager
    b. Strong value proposition to solve real pain points
        i. Craft value proposition to each company's need.
        ii. How do we win together in all this?
        iii. We help you to achieve your goals.
    c. Urgency: When do they need us? It must be soon, otherwise it is a potential lead, and we can put them in our waiting list!
    d. Budget:
        i. Is their money enough?
        ii. Can we adjust and negotiate which margin?
2. **Getting Started**
    a. Setting Goals
        i. Which number do we want to achieve?
        ii. Is it realistic?
        iii. What is our basis or benchmark?
        iv. What will our growth rate be?
    b. Getting the clients!
        i. Lets' pick up the list of potential clients, using our previous research on potential companies to work with us.
        ii. Building a strategy

1. **Localisation:** Where are the tech hubs of these companies located?
2. **Search & Contact:** Choose smartly who will you contact:
    i. Start by someone on your network that might work in the company
    ii. Ask to introduce you to an influencer or decision maker that they might know.
    iii. Get some email or just LinkedIn
    iv. Contact them!
    v. Alert: If you do not have any contact, start the research based on the localisation of the tech hubs

3. **Crafting**
    i. Review Career Jobs of each company and build a craft team.

4. **Benchmark: How do we become more competitive?**
    i. To give an added value, we deliver upgraded profiles, exceeding client requirements.

5. **Offer Submission & Contact**
    i. We send a first offer! Still, we are open to continued talk, we want to deliver the best team for the best project.
    ii. What do we need to make it happen?

INPUTS

- What do they want to do?
- How much do they want to spend?
- Are the professionals they are looking for the best to achieve their goals?
- What do we guarantee?

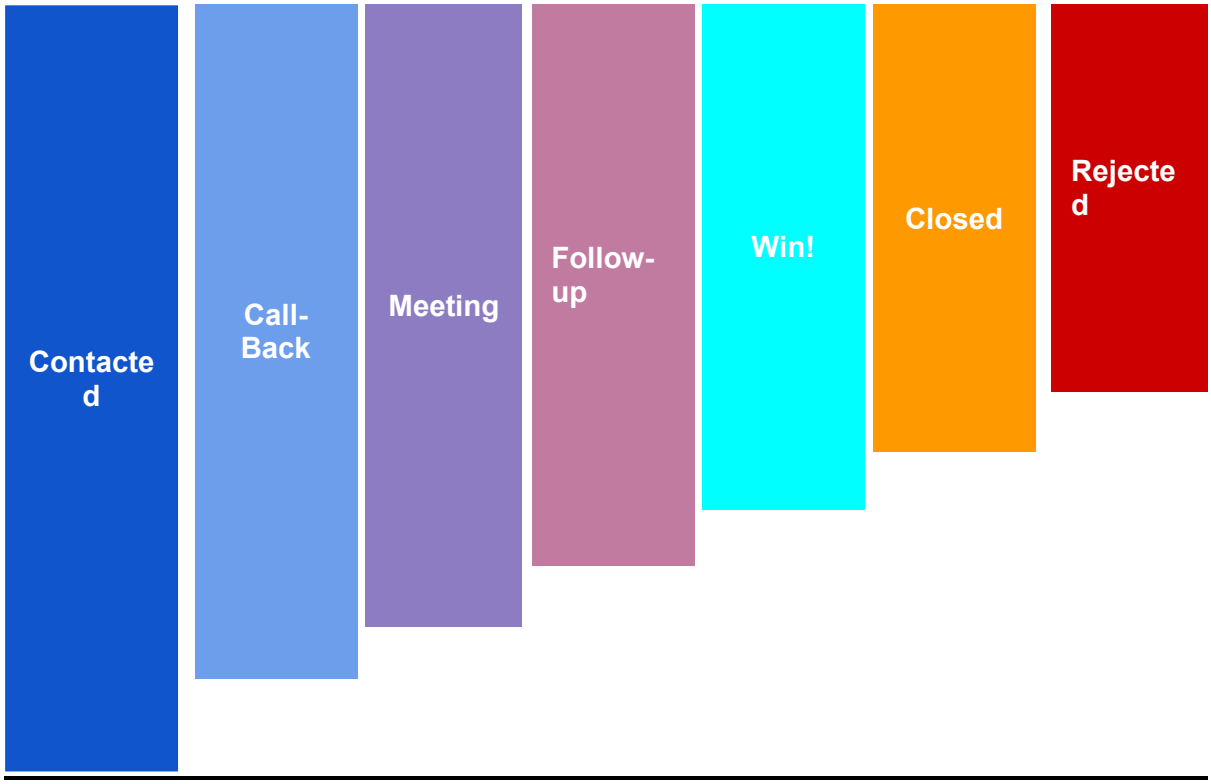
6. **Follow-up**
    a. We need an answer always if possible.

b. If …

i. Yes: Close the deal

ii. No: Why? what is missing or what should we improve?

Sales Pipeline:



Graph 1. Sales Pipeline

Contacted: Company was reached out through LinkedIn or Direct Referral.

Call-Back: Company is interested in meeting us and replied to our message.

Meeting: Company scheduled and attended a meeting.

Follow - Up: Company is considering our services through a trial.

Win: Contract signed

Closed: The process is closed for any reason.

Rejected: Company does not require our services in the short term.

Key Performance Indicators:

Contact: 5 targets a day from selected company

Follow-up: Talk to at least one of those people in the following two days

Goal: Have at least one meeting setup/ready in a week/half of a week

Aim: Convert at least 50% of all meetings or get a definite commitment.

7.3 Appendix 3: Financials

Financial Model

Financial Model							
Income				**Expenses**			
	Year 1 $	Year 2 $	Year 3 $		Year 1 $	Year 2 $	Year 3 $
Revenues	2,250,000	11,250,000	45,000,000	Renumeration (SD)	60,000	300,000	1,200,000
				Renumeration (Admin)	36,000	50,000	80,000
Performance Bonus (10%)	225,000	1,125,000	4,500,000	Performance Bonus (5%)	3,000	15,000	60,000
	2,475,000	12,375,000	49,500,000	Tech Hardware	50,000	250,000	1,000,000
				Tech Tools (subscriptions etc)	25,000	75,000	250,000
				Website Upgrades & Maintenance	10,000	25,000	50,000
					184,000	715,000	2,640,000
Total	2,475,000	12,375,000	49,500,000	Total	184,000	715,000	2,640,000
Expenses	184,000	715,000	2,640,000				
Gross Profit	2,291,000	11,660,000	46,860,000				

Table 2: Financial Model Projections

Projections Breakdown:

Income Subsection	
One SD = 60 - 90k Income Estimate (1st Year)	
5 teams = 25 SD (1st Year)	
25 Teams = 125 SD (2nd year)	
100 Teams = 500 SD (3rd year)	
SD = Software Developer, SSD = Senior SD	
SD	1,800,000
SSD (120k)	600,000

Table 3: Income Projections

Renumeration Subsection	
One SD = 60 - 90 k Earning Estimate (1st Year)	
5 teams = 25 SD (1st Year)	
25 Teams = 125 SD (2nd year)	
100 Teams = 500 SD (3rd year)	
Staff Strength Assumed	
SD (Y1; 20, Y2; 100, Y3; 400)	40,000
SSD (Y1; 5, Y2; 25, Y3; 100)	20,000
Renumeration Admin (18 Persons) Assumed 2k each, covers intern and higher earners	
Renumeration Admin (Y1; 18, Y2; 25, Y3; 40 P)	
Tech Hardware	$2,000 per SD

Table 4: Renumeration Projections

Salary Scenario				
Teams	**Size**	**Speciality**	**Single Earnings**	**Total**
Team 1	2	2 Full- stacks	2.5k	5k
Team 2	3	2 FS & 1 Senior E	2.5k & 3.5k	8.5k
Team 3	4	2FS, 1 Sen, 1 QA	2.5k, 3,5k & 2.5k	12k
Team 4	5	2FS, 1 Sen, 1 QA & 1 Dev-ops/Data Scientist	2.5k, 3,5k, 2.5k & 3.5k	15.5k

Table 5: Salary Scenario

Venture Financing:

Plan A: Bootstrapping

a. Utilize personal funds, support from family and friends.

b. Implement lean approach and launch, generate initial cashflow from monthly commissions, project advance and team earnings from which expenses are drawn.
c. Pursue Zebra approach, using-what-you-earn and minimize cash burn.
d. Remote model allows prioritization of talent and clients, satisfaction and value delivery on both counts is crucial.

Plan B: Incubator/Accelerator

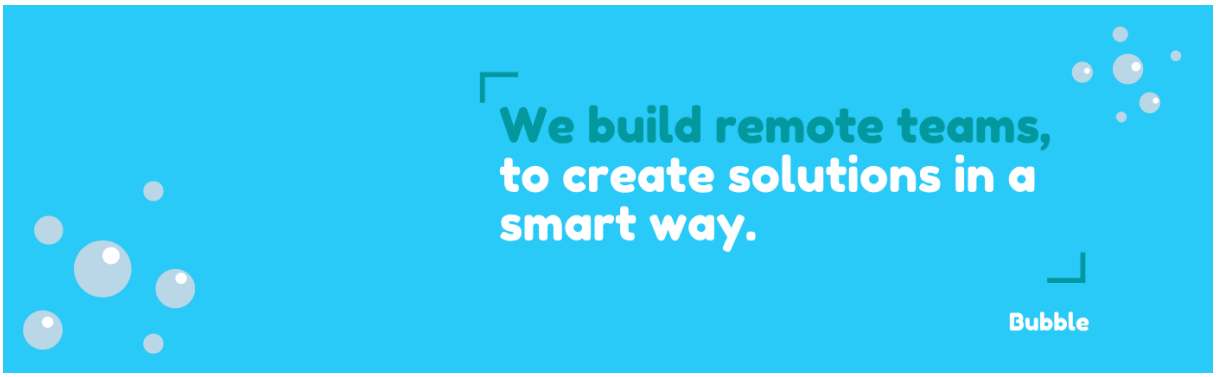
a. Explore the various options and platforms on offer
b. Determine founder strategy, philosophy, and compatibility with desired programs
c. Investigate requirements and complete application
d. Acceptance and utilization of platform benefit as well as funding support.

Plan C: Pre-Seed Funding

a. Complete due diligence, comprehensive problem-solution-market fit.
b. Existence of working MVP, prototype, or active venture
c. Networking with Angel investors with a proven track record and particular investment interests.
d. Secure funding and support.

7.4 Appendix 4: Marketing Materials

Picture 1



Picture 2

Pitch Document: https://drive.google.com/file/d/1V4z0_8ZB1Pr6Lxe5DA9ITRveGLD8-UOb/view?usp=sharing

Social Media

LinkedIn: https://www.linkedin.com/company/bubble-tech/

Facebook: https://www.facebook.com/Bubble-Tech-582181665744970

Medium: https://medium.com/@hello.bubble.tech

7.5 Appendix 5: Findings and Additional Information

The findings for each question are examined below:

1. What is your age: Being an open-ended question, ages 18 and 20 had one respondent each, two respondents were aged 21, one respondent was aged 22, three respondents indicated age 23, two respondents were aged 24, eight respondents were aged 25, five respondents were aged 26, five respondents indicated age 27, age 29, 31, 33, and 34 had one respondent respectively while two respondents were aged 30.
2. Do you have a degree in tech: Twelve respondents indicated "Yes" for this question; eight respondents indicated "No" while thirteen respondents indicated "Self-Taught".
3. How many years of working experience do you have: Three respondents indicated 0 years, seven participants indicated I year, five respondents indicated two years and three years respectively, four respondents indicated 4 years, years 5, 6 and 10 had one respondent each.
4. What is your role in tech: Five respondents were software engineers (Back-end), four respondents were software engineers (Front-end), Three respondents were data scientists, and two respondents were mobile developers. Sixteen respondents indicated as "other".
5. Which of the following technologies do you utilize in developing projects: Ten respondents use HTML 5, six respondents use CSS, React and Python had five respondents each, four participants indicated Node JS, Google Cloud had three respondents, C++, Typescript, PHP, Java, Dockers had two respondents each. Vue, Laravel, Django, Java-Spring, C# .NET, CH. Net Core, Ruby on Rails, Android Native, Kotlin, Flutter, Kubernetes, AWS, all had one respondent each.
6. Have you ever worked as freelancer at any point in your tech career: fourteen respondents indicated "Yes', and ten respondents indicated "No".

7. Are you currently working as a freelancer: Eight respondents indicated “Yes”, and sixteen respondents picked “No”.
8. Do you currently have a full-time job related to technology: Eight respondents picked “Yes”, and sixteen respondents picked “No”.
9. Are you currently looking for a new job: Eighteen respondents indicated “Yes”, and five respondents answered “No”.
10. What are your motivations for seeking a new job: “International Experience” and “Professional Development” were picked by ten respondents each. Eight respondents picked “New Challenges”, six respondents indicated “Better Salary”, four participants picked “Working in top-tier teams” and two participants picked “Other”.
11. What is your average salary per month (Naira): Six respondents picked less than 100,000, ten respondents indicated 100,000–200,000, the ranges 201,000-300,000, 301,000-400,000 and 501,000-600,000 all had one respondent each while 401,000-500,000 had two respondents.
12. If you are looking for a job, which of these would be ideal in terms of a contract: Six respondents picked “Freelance” has being suitable, ten respondents pick “Full-time” and five respondents picked “Part-time”.
13. Do you have experience working remotely (Remote refers to working with other countries outside your country of origin); Twelve respondents picked “Yes”, and 10 respondents indicated “No”.
14. Do you like the remote experience (Only asked from those who indicted “Yes” in the previous question): Twelve participants indicated “Yes”.
15. Would you like to have a remote experience (Only asked from those with no remote experience yet): Nine respondents picked “Yes”, and one respondent indicated “No”.

16. Why would you like a remote experience (rated on a scale of 1-5): *"Digital Nomad Lifestyle"* was rated 2 and 3 by two respondents each, eight respondents gave it a rating of 4 and seven respondents rated it 5. *"New Challenges"* was rated 3 by one respondent, it was rated 4 and 5 by nine respondents each. *"Flexibility"* was rated 1 and 2 by one respondent each, eight respondents rated it 4 and nine respondents rated it 5. *"Independence"* had one respondent who rated it 2, two respondents who rated it 3, eight respondents rated it 4 and 5, respectively. *"Work-life Balance"* was rated 3 by three respondents, seven respondents rated it 4 and nine respondents rated it 5.
17. According to your tech-work experience, rate the following salaries "*Naira"* (rating scale; low, average, competitive, high): twelve respondents indicated *100,000* as low, six participants indicated it as average. *250,000;* one respondent indicated it as low, eight considered it average and nine respondents thought it was competitive. *400,000;* nine participants indicated it as average, six participants considered it as competitive and three participants indicated it as high. *500,000;* one participant indicated it as average, twelve considered it as competitive five participants indicated it as high. *750,000;* eight participants indicated as competitive and ten participants rated it as high. *1,000,000*; two participants indicated it as competitive and sixteen rated it as high. *1,200,000;* eighteen respondents rated it as high.
18. How challenging were these reasons in your search for a new job (rated on a scale of 1-5): *"Lack of suitable jobs"* had two respondents who rated it 1, three respondents each rated it scores 2, 3 and 4. Six respondents rated it 5. *"Competition/High No. of Applicants"* had two respondents each who rated it 1 and 2. Five respondents rated it 3 and three respondents each rated 4 and 5, respectively. *"Long recruitment process"* was rated 1 by three respondents, two respondents rated it 2, six respondents indicated a rating of 3, the ratings 4 and 5 had three respondents each. *"Low proficiency in tech*

skills" had four participants each for ratings 1, 2, 3 and 4. One participant rated it 5. *"Inability to perform in technical tests"* as rated 1 by seven respondents. Rated 2 and 3 each four respondents while 4 and 5 were each rated by one respondent. *"Lack of soft skills (leadership, communication etc)"* had nine participants who rate it at 1, three respondents rated 2 and four respondents indicated a rating of 3. One participant rated it a 4. Low pay was rated 1, 2, 4 and 5 by three respondents each, five respondents rated as 3.

19. What would you value most in a new job (Choose any three): *"Opportunity to learn"* and *"Career advancement"* both had sixteen respondents each, *"Opportunity to work in high-performance teams"* was indicated by ten respondents, eight respondents indicated *"International exposure", "Flexibility"* and *"Competitive salary"* was indicated by 5 respondents each. *"Challenging environment"* was picked by four respondents and three respondents signified *"Recognition".*

Additional Interpretation:

60% of respondents had remote experience (working with other countries outside country of origin); 100% of respondents who had remote experience liked it, and among those who did not have, 90% would like to have a remote experience.

Challenges indicated by respondents as faced while seeking a new job: Insights gleaned from secondary sources and recruiter feedback indicate that this is not case. Low pay was also a surprise, with respondents being equally distributed on the importance rating, though it can be posited that the young age, low earnings, and ecosystem growth stage are quite logical explanations for this.

Additional Country Information:

The cultural value of large families is attributed by the report has contributing to high fertility rates and Nigeria's population boom, these factors therefore are posited as driving the boom in Nigeria's population, which the report states has been expected to grow to 300 million by 2050. Home to four of the world's fastest growing cities, it asserts that Nigeria's population growth in part makes it an economic powerhouse, due to the present of an incredibly young demographic makeup (OC&C SC 2018).

7.6 Appendix 6: Recruitment

Tech Profiles

I. Objective

We want to identify the perfect mix of tech talent to build strong and powerful teams who are goal-oriented and focused on delivering solutions through creative ideas.

II. What are our partners looking for?

Our clients are looking for remote teams to:

1. Go distributed & diversify the pool of talent they have access to.

Do not limit your human resources to territorial boundaries. There is a world outside full of skilled and talented people who can add invaluable knowledge to your company. This will enable them to incorporate specialized and diverse talent that can build disruptive and out-of- the box solutions.

2. Increase time- effectiveness

Having the ability to access different time zones, enables your company to have teams strategically available almost all day!

3. Increase productivity

According to a Stanford Study, remote workers are more efficient and surpass their productivity of office workers. Additionally, their attrition rate is 50% less.

4. Improve working conditions: Reduce stress

Flexible schedule and being able to manage own working schedules reduce stress levels of up to 82% of the employees. Therefore, mental and health conditions are boosted, and they are reflected in performance.

5. Reduce costs

According to Global Tech Analytics, each remote employee can represent a 10,000 USD saving per year, allowing the company to pay competitive salaries to the best profiles.

III. What are we looking for?

1. Roles

1. Mid Engineers

- Years: 3 to 4 YOE
- Role: Front-end, Back-end, Full-Stack, Mobile

2. Senior Engineers

- Years: 5 to 7 YOE
- Role: Front-end, Back-end, Full-Stack, Mobile

3. Data Scientists & Analyst

- Years: 3 to 4 YOE

4. AI & ML Specialist

- Years: 3 to 4 YOE

2. Technical abilities

a. Mid Engineers

- Languages and Frameworks
- Typescript

Front- End: Angular, React, Vue

Back-end: Node JS

- Python

Back-end: Django

- PHP:

Back-end: Express, Laravel

- Ruby

Back-end: Ruby on rails

- MOBILE

iOS: Swift, Flutter, Ionic

Android: Kotlin, React Native, Ionic, Flutter

- Databases
- SQL, MySQL, Oracle
- Mongo DB
- Cloud Knowledge
- AWS, Azure, Google

b. Senior Engineers

c. Languages and Frameworks

- Typescript

Front- End: Angular, React, Vue

Back-end: Node JS

- Python

Back-end: Django

- PHP:

Back-end: Express, Laravel

- Ruby

Back-end: Ruby on rails

- MOBILE

iOS: Swift, Flutter, Ionic

Android: Kotlin, React Native, Ionic, Flutter

- Databases
  - SQL, MySQL, Oracle
  - Mongo DB
- Cloud Knowledge
  - AWS, Azure, Google

d. Data Scientists & Analyst

e. AI & ML Specialist

- Languages and Frameworks
  - Python
  - Java
  - R

3. Soft-Skills

a. ***Self-love:*** Spirited people, who believe work-life balance is important part of their lives. They find it easy to adapt to different situations and manage difficulties effectively. Feedback is received and given positively as part of the growth of the person.

b. Self- taught talents: Curiosity and innovation is what keeps the tech world on track. Craving for new knowledge and efficient use of available resources to address problems are game changers when achieving results.

c. Self- managers: we would set the guidelines and support 100% but it is imperative to be able to work autonomously and keep themselves self-motivated to stay productive!

d. Discipline & Commitment: Talent is key, but discipline is a must when pursuing greatness. In alignment with ***personal productivity***, it sets the basis for making the most of your time!

e. Communication: Adapting to new environments and diverse teams implies having strong communication skills. Written abilities and "connect through talking" help to create bonds within the teams, improving the working environment when difficulties arise. Moreover, it encourages collaboration. ***[Rock your storytelling skills!]***

f. ***Proactiveness:*** Taking action is important to make things happen, and it is a strong motivator for the other members of the team!

g. ***Passion:*** we believe that outperformers are the ones who love what they do. Work represents in most of the cases ⅓ of what daily time expenditure, we want to collaborate with the talents who enjoy their work so they can deliver the best of their potential to make their ideas a reality.

Recruitment Process				
Project				
	Recruitment Process			
Objective				
	We want to attract and recruit the best talent in worldwide to work perform in different projects.			
Duration				
	2 weeks each cycle.			
Process				
	Phase 1: Filtering		Duration	1 week
			Tool	Typeform
	Phase 2: Phone Screening		Duration	TBC
			Tool	Phone Call
	Phase 3 Tech Challenge		Duration	TBC
			Tool	Tech Challenge / Tech Interview
	Phase 4: Psychological Assessment		Duration	TBC
			Tool	Test
			Duration	TBC

	Phase 5: Interview	Tool	Test
	Phase 6: Offer	Duration	TBC
		Tool	Test

Table 6: Recruitment Process

7.7 Appendix 7: Client (Company) Survey

Hello,

This survey was designed to gather data for a master's thesis research project at the Nova School of Business and Economics and this survey is being conducted as part of an Entrepreneurship field lab thesis.

The survey lasts less than 3 minutes and your participation is completely voluntary.

The information provided is anonymous, confidential and is slated for these research needs.

If you have any questions about this study, please do not hesitate to contact me at 41627@novasbe.pt.

Thank you.

1. Type of company (Industry)
2. Company size based on number of employees (1-10, 10-50, 100-200, 200+)
3. With regards to your tech team(s), do you outsource tech talent to develop or work on projects from outside of your organization. (If any, these involves having software developers, data scientists etc. and not tech support)
4. What is the size of your tech team? (If any, these involves having software developers, data scientists etc. and not Tech support) [0, 1-5, 5-10, 10-15, 15+]
5. Do you think you might need to hire a tech profile or build a tech team in the next six months?

6. What format would this recruitment take? (Part-time, Full-time, Short-term Contract, Freelancer)
7. How would you like to hire tech teams? (Internal HR (Careers Website/LinkedIn), External Agencies (Head-hunters, HR companies etc), Outsourcing, Others)
8. How long does it take on average to hire a tech profile? (1 week, 2-3 weeks, 4 -6 weeks, 6+ weeks)
9. How do you hire tech teams? (Internal HR (Careers Website/LinkedIn), External Agencies (Head-hunters, HR companies etc), Outsourcing, Others)
10. Which problems do you normally face in recruiting tech profiles? (Inadequate/weak recruitment process, Inability to accurate assess technical expertise, Time consuming, Scarcity of desired tech profiles, Other, please indicate)
11. How much would you pay a junior developer at hourly rates (Consider a junior developer having up to 3 years of experience in the latest technologies) [Below 12€ per hour, 12€-16€, 16€-20€, 20€-25€, Above 25€ per hour]
12. How much would you pay a mid-level developer at hourly rates? (Consider a mid-level developer having between 4-6 years of experience in the latest technologies) [Below 15€ per hour, 16€-20€, 20€-25€, 26€-30€, Above 30€ per hour]
13. How much would you pay a senior developer at hourly rates (Consider a senior developer having more than 6+ years of experience in the latest technologies) [Below 20€ per hour, 20€-25€, 26€-30€, 30€-35€, Above 35€ per hour]
14. How long in average do you expect it would take to fill a tech position? (1 Week, 2 Weeks, 3 Weeks, 4 Weeks, 4+ Weeks)

7.8 Appendix 8: Developer Survey

Hello,

This survey was designed to gather data for a master's thesis research project at the Nova School of Business and Economics and this survey is being conducted as part of an Entrepreneurship field lab thesis.

The survey lasts less than 5 minutes and your participation is completely voluntary.

The information provided is anonymous, confidential and is slated for these research needs.

If you have any questions about this study, please do not hesitate to contact me at 41627@novasbe.pt.

Thank you.

1. What is your age?
2. Do you have a degree in Tech? (Yes, No, Self-Taught)
3. How many years of working experience in tech do you have?
4. What is your role in Tech? (Software Engineer (Back-end), Software Engineer (Front-end), QA, Data Scientist, DevOps, BI Analyst, Mobile Developer, Other (Please specify if not listed)
5. Which of the following technologies do you utilize in developing projects? Choose the ones in which you have more than two years of experience in working with. (HTML 5, CSS, C++, Typescript, Angular, React, Vue, PHP, Laravel, Python, Django, Node JS, Java, Java-Spring, C# .NET, CH. Net Core, Ruby on Rails, Android Native, Swif, Kotlin, Flutter, React Native, Dockers, Kubernetes, AWS, Azure, Google Cloud, IoT)
6. Have you ever worked as a freelancer at any point in your tech career? (Yes, No)
7. Are you currently working as a freelancer? (Yes, No)
8. Do you currently have a full-time job related to technology? (Yes, No)
9. Are you currently looking for a new job? (Yes, No)

10. What are your motivations for seeking a new job? (Better Salary, New Challenges, International Experience, Professional Development, Working in Top-Tier Teams)
11. What is your average salary per month (Naira)? (less than 100,000, 100,000-200,000, 201,000-300,000, 301,000-400,000, 401,000-500,000, 501,000-600,000, More than 700,000)
12. If you are looking for a job, which of these would be ideal in terms of a contract? (Freelance, Full-time, Part-time)
13. Do you have experience working remotely? (Remote refers to working with other countries outside your country of origin) (Yes, No)
14. Did you like the remote experience? (Yes, No)
15. Would you like to have a remote experience? (Yes, No)
16. Why would you like a remote experience? (Rate the following reasons from 1-5, considering 1 is the lowest score and 5 is the highest) [Digital Nomad Lifestyle, New Challenges, Flexibility, Independence, Higher Income, Work-life Balance]
17. According to your tech-work experience, rate the following salaries? (What is your opinion on these salaries, rate them as Low, Average, Competitive, High) [#100,000, #250,000, #400,000, #500,000, #750,000, #1,000,000, #1,200,000]
18. How challenging were these reasons in your search for a new job? (Rate the following reasons from 1-5, considering 1 as the least challenging rating and 5 as the most challenging rating) [Lack of suitable jobs, Competition/High No. of Applicants, Low pay, Long recruitment process, Low proficiency in tech skills, Inability to perform in technical tests, Lack of soft skills (leadership, communication etc]
19. What would you value most in a new job? Choose any three. [Opportunity to learn, Career advancement, Recognition, Flexibility, Challenging environment, International exposure, Opportunity to work in high-performance teams, Competitive salary]